

EFFECT OF PHYSICAL FITNESS VARIABLES ON URBAN AND RURAL SCHOOL LEVEL CRICKET PLAYERS

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ABSTRACT

The purpose of the study was to investigate the effect of physical fitness variables on urban and rural school level cricket players. Forty (20 urban school & 20 rural school) male cricket players of Paschim Midinipur district (W.B.) were selected by purposive random sampling method for the investigation. All subjects were randomly assigned experimental group (A) and control group (B). Each group consisted of 20 subjects. The six week cricket training program was assigned to the experimental group. The group B served as a control group and was not given any type of training. To assess the physical fitness components of male cricket players belong to urban and rural area schools, means and standard deviations were computed. To find out the significant difference between pre-test and post means of experimental group and control group of male cricket players belong to urban and rural area schools, t-ratios were computed on six components of physical fitness for investigated subjects. The results of the investigation revealed that 1. Male cricket Players of both the groups were homogeneous with respect to muscular strength and endurance of arm and shoulder at pre-test point. But there is a effect of treatment on the pull-ups post-test performance. 2. Similarity was found among male cricket players of both the groups in their muscular strength and endurance of abdominal muscle at pre-test and post test point. But there was no effect of treatment on the sit-ups test performance of male cricket players of school level belong to urban and rural area. 3. Significant effect was not observed on the shuttle run test and standing broad jump performance of Male Cricket players of school level belong to urban and rural area. 4. Significant effect exhibited by male cricket players of school level belong to urban and rural area on the 50 yard dash and 600 yard test performance.

Keywords: Urban, Rural, Physical fitness, Cricket Players

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INTRODUCTION

The poor performance of Indian sports persons at the international and national competition has been of a great concern. Efforts have to be made to develop proper means and methods so that stagnating factors might be eliminated for higher level performance. Since it is difficult for the teachers and coaches to impart systematic and technical training in all component of physical performance and to determine their degree of influence in connection with the performance, they can be best, expose their trainee, to a programme of physical fitness development which might enhance their performance in games and sports in general (Uppal, 1984).

There are numerous factors which are responsible for the performance of sportsmen. The physique and body composition including the size, shape and form are known to play a significant role in this regard (Sodhi and Grewal, 1984).

The performance of a sportsman in any games or event also depends on speed, strength, endurance, agility, flexibility and co-ordination. Along with these physical variables, physiological and psychological components, also play an important role in the execution of the performance.

Games and sports had become an integral part of human beings; it rose to its greatest height in Greece, which is called "Golden Era" in the history of games and sports. Through the development of various motor fitness components such as agility, power, balance, flexibility, local muscle endurance, cardio vascular endurance, coordination of these entire components one is able to develop the various skills accurately & efficiently. These components can be achieved through scientific and systematically i.e. step wise step. General motor skills are developed from the childhood onwards when the children starts running, jumping, playing, walking etc. Motor ability refers to the level to which one has developed his innate capacity to learn motor skills.

Human life is based upon the body he keeps. All the activities of life are done with the help of body. Nature has created humans to perform various activities efficiently. Today modernization has made human life more easy, as most of the work is performed by the machines. The sedentary life style of man has reduced the efficiency of humans. The less working capacity of humans has caused many problems like weakness, illness, chronic diseases, etc. In past our ancestors were quite healthy and fit. The big reason was that, they had to perform a lot of hard physical activity, like running, walking, jumping etc. The environment in past was less polluted. Moreover, they had less stresses in their life. Today it is all opposite, i.e., physical activity is less, environment is polluted, unhygienic conditions exist all around, life is full of stresses, unbalanced diet etc. All these factors have reduced the efficiency of humans. Today, we desperately require physical fitness not only to improve our abilities but also to improve our health and wellness. This will also help to develop healthy environment around us along with community health, thus nation will be benefited. By die physical fitness programs, we can improve our fitness, wellness and health (Kundra, 2009).

Physical fitness is one of the main factors for an athlete's success. It has been shown that a high level of the elements of physical fitness such as cardiovascular endurance, muscular strength and endurance, flexibility and speed is useful and effective in achieving success in different sports. Nowadays, before being sent to competitions, teams are given a test for the evaluation of the physical status of their members (Zarl et. al., 2008).

Physical Fitness is the ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure-time activities and meeting emergency demands (Singh et.al., 2008).

Research suggests that individuals who have increased fitness knowledge via health education are more likely to be physically active and fit. In addition, an individual's health literacy is suggested to play a substantial role towards the acquisition of health knowledge. However, literature delineating the relationship between health knowledge, health literacy, and the components of health-related physical fitness is scarce and inconsistent (Faktor, 2009).

According to expert Hebbellneck (1984) "Physical fitness is a combination of muscular strength, endurance, speed, agility, indoor skills, flexibility and co-ordination. These have been growing realization of physical fitness enhancing human health and performance. The term physical fitness implies fitness of the body and mind and due to body and mind relationship, the new concept of physical fitness includes mental, emotional, social as well as physical aspect.

According to Barrow (1972) It is not a stage for young but for all ages". Physical fitness and motor fitness are often used as a inter changeable terms.

According to Clarke (1971) "Physical fitness has three basic components i.e. muscular endurance, muscular strength and circular-respiratory endurance, where as motor fitness includes four additional components i.e. muscular power, agility, flexibility and speed". The human values conquest in the field of sports holds a unique place. It is success, victory, triumph and domination of some over other team mates and friends because sports is comradeship and friendship.

In football training special and multifaceted motor abilities have direct impact on the special fitness of the football players. Depending on the needs, they can be helpful as a selection criterion and useful for the evaluation of the progress in the player abilities (Cicirko, 2007).

The researcher was the student of physical education. The researcher knows very well that physical fitness is essential for the human life. It has a great role in life, but to maintain physical fitness and Functions of Internal Organs daily exercise is must. The researcher has seen people of deferent School Level Students doing different kind of exercises for example –swimming, running, walking, calisthenics and yoga exercises etc. But which exercise has high and low influence on physical fitness and health status, so the researcher was interested to investigate the effect of physical fitness variables on urban and rural school level cricket players. It was also hypothesized that there may be significant difference in pre-test and post means of Experimental and Control Groups of male cricket players on six components of AAHPERD youth physical fitness tests.

METHODOLOGY

Selection of Subjects:

Forty (20 urban school & 20 rural school) male cricket players of Paschim Midinipur district (W.B.) were selected by purposive random sampling method for the investigation. All subjects were randomly assigned experimental group (A) and control group (B). Each group consisted of 20 subjects. The six week cricket training program was assigned to the

experimental group. The group B served as a control group and was not given any type of training. The mean age and SD of the male cricket players were 17.96 ± 1.67 respectively.

The subject were explained about the purpose of study in the presence of their physical education teacher and principal of schools to elicit active cooperation from the subject.

Sampling Technique:

Sampling is an important process in research work, especially where the researcher has to collect the data from limited or particular population. The present study was comparative. The sample was selected through purposive sampling technique. The data was collected from the women players of team and individual and games.

Criterion Measure:

Measurement for various variables were taken at the beginning (pre- test) and at the end of experimental period, after six weeks (post-test). The data was collected before and after six weeks of experimental period by using standard tests. Time was recorded to the nearest second the hanging position held (Flex-arm hang); Maximum number of correctly executed pull-ups performed ; Number of correctly executed sit-ups performed in one minute ups; time taken to run a distance of 40 meter (Girls) and 60 meters (Boys) as fast as possible recorded in 1/10 of second,, maximum horizontal distance jumped from ground level and reach at same ground level(standing broad jump) and recorded in to nearest centimeter; time taken to run a distance of 50 yard as fast as possible recorded in 1/10 of second; and time taken to run a distance of 600 yard as fast as possible recorded in minutes and seconds were recorded.

Description and Administration of Tool:

The AAHPER Youth Fitness Test was administered to the subjects at their respective ground. Tester got help from Physical education teacher, Coaches and permission of the head of the concerned institution. The subjects were explained about the tests and demonstration of all the test items were given to them.

They were allowed to warm up on their own, for 5 to 10 minutes before the actual test were administered. A gap of rest was given before the administrations of each test in remaining test item were not influenced by the previous item. Measuring tape, stopwatch, whistle, pen, paper, wooden blocks were used as instruments for the tests to collect the data. AAHPER Fitness Test is given in Appendix at the end of references.

Statistical Analysis:

To assess the physical fitness components of male cricket players belong to urban and rural area schools, means and standard deviations were computed. To find out the significant difference between pre-test and post means of experimental group and control group of male cricket players belong to urban and rural area schools, t-ratios were computed on six components of physical fitness for investigated subjects. The level of significant was set at .05 level.

RESULTS AND DISCUSSION

In order to find out the significance of differences among male cricket players of urban and rural area secondary schools belong to Paschim Midnapur district (west Bengal), means, standard deviations, and t-ratios were computed for obtained data by using AAPER Youth Physical Fitness Test. To check the obtained t-ratio, the

level of significance was set at .05 level and data pertaining to this have been presented in Table 1 to 7 .

TABELE 1
DESCRIPTIVE STATISTICS OF PHYSICAL FITNESS COMPONENTS OF MALE
CRICKET PLAYERS OF EXPERIMENTAL AND CONTROL
GROUPS ON PRE-TEST AND POST-TEST

Test Variables	Treatment	Experimental Group (N=20)		Control Group (N=20)	
		Mean	SD	Mean	SD
Pull-Ups	Pre-test	06.15	1.76	06.85	1.46
	Post-test	08.85	1.53	07.60	1.50
Sit-ups	Pre-test	26.90	2.02	27.85	4.65
	Post-test	29.05	1.79	27.85	4.64
Shuttle Run	Pre-test	16.20	1.51	11.66	0.32
	Post-test	11.62	0.53	11.65	0.31
Standing Broad Jump	Pre-test	194.70	14.07	176.15	12.95
	Post-test	170.40	13.77	176.15	12.94
50 Yards Run	Pre-test	08.99	0.66	09.21	0.82
	Post-test	10.28	0.82	09.21	0.84
600 Yards Run	Pre-test	2.19	0.38	02.69	0.22
	Post-test	2.09	0.26	02.06	0.23

The mean scores of various components of physical fitness on pre-test and post-test of experimental and control group of male cricket players have been depicted in figures 1 to 6.

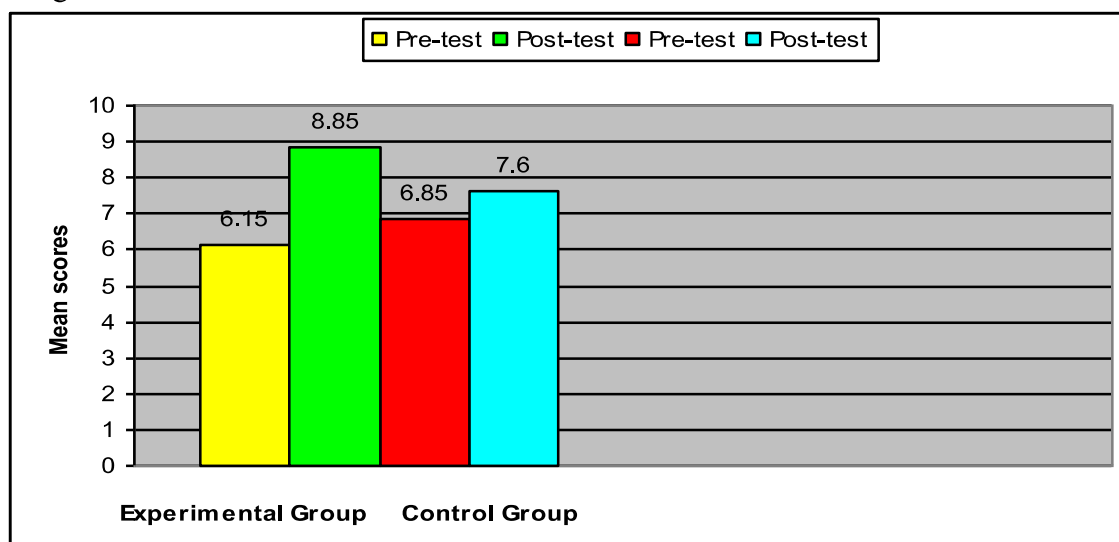


Figure-1: Mean Scores of Pull-Ups on Pretest and Post-test of Experimental and Control Group of Male Cricket Players

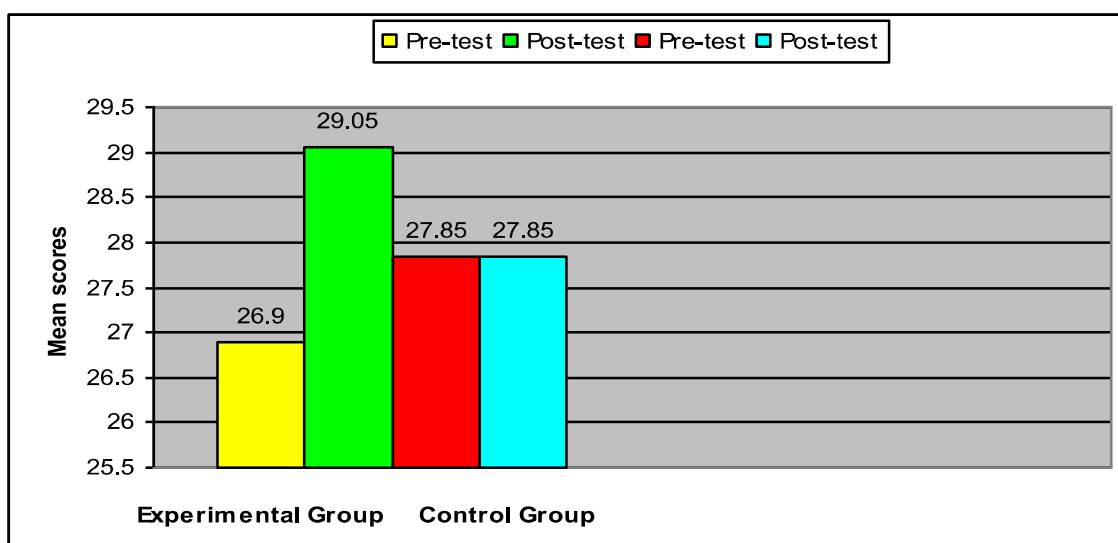


Figure-2: Mean Scores of Sit-Ups on Pretest and Post-test of Experimental and Control Group of Male Cricket Players

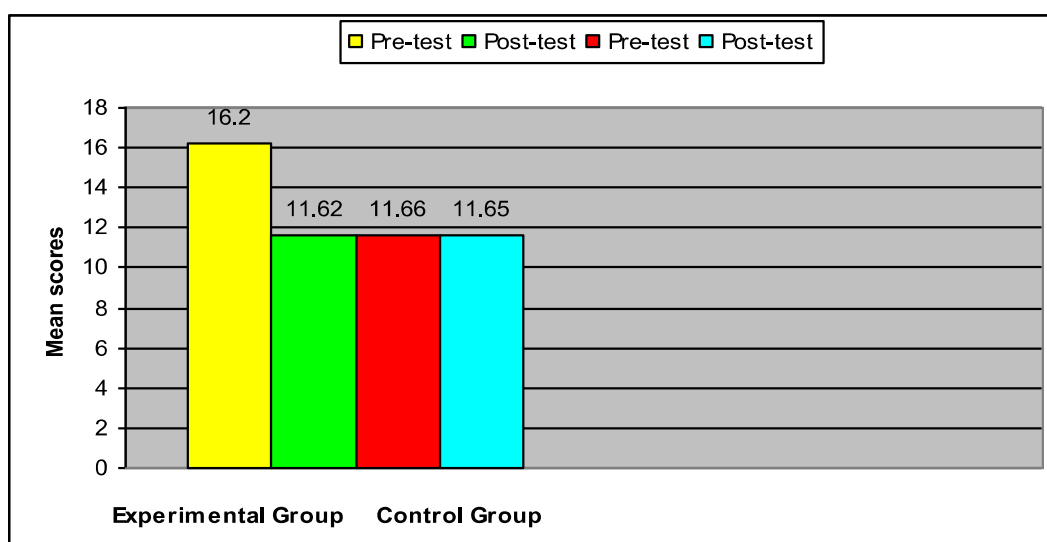


Figure-3: Mean Scores of Shuttle Run on Pretest and Post-test of Experimental and Control Group of Male Cricket Players.

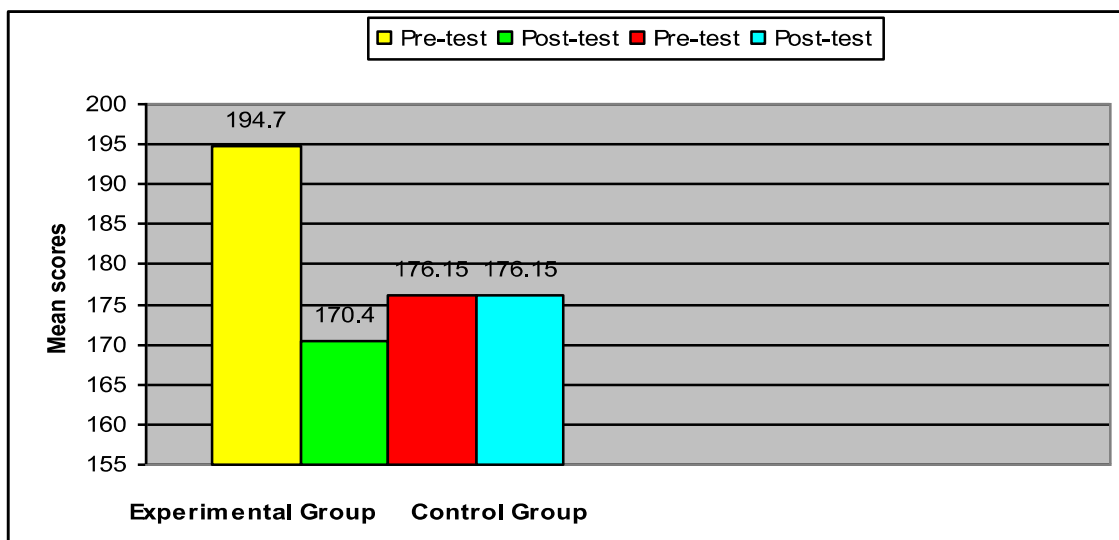


Figure-4: Mean Scores of Standing Broad Jump on Pretest and Post-test of Experimental and Control Group of Male Cricket Players.

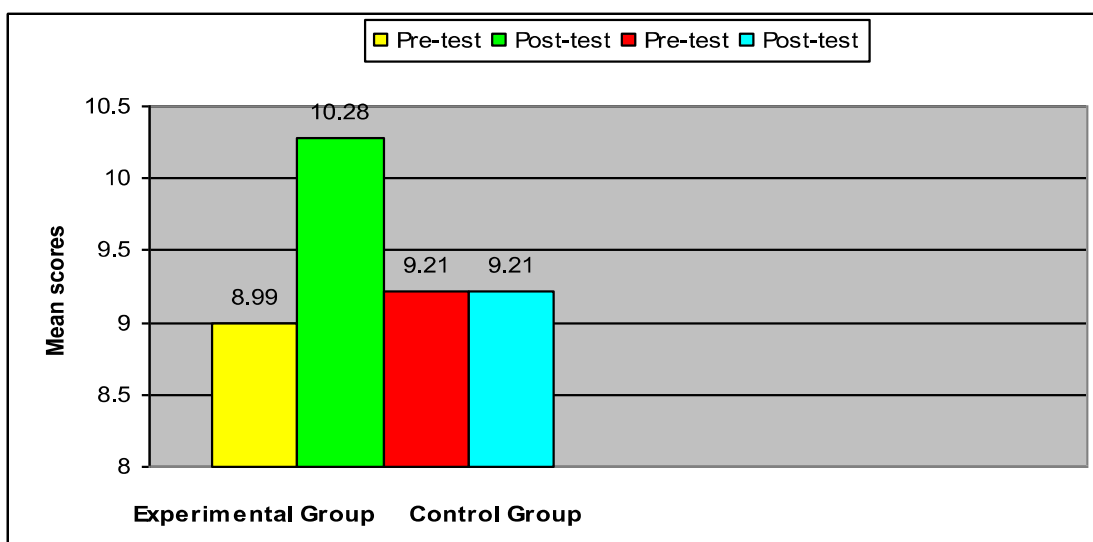


Figure-5: Mean Scores of 50 Yard Dash on Pretest and Post-test of Experimental and Control Group of Male Cricket Players.

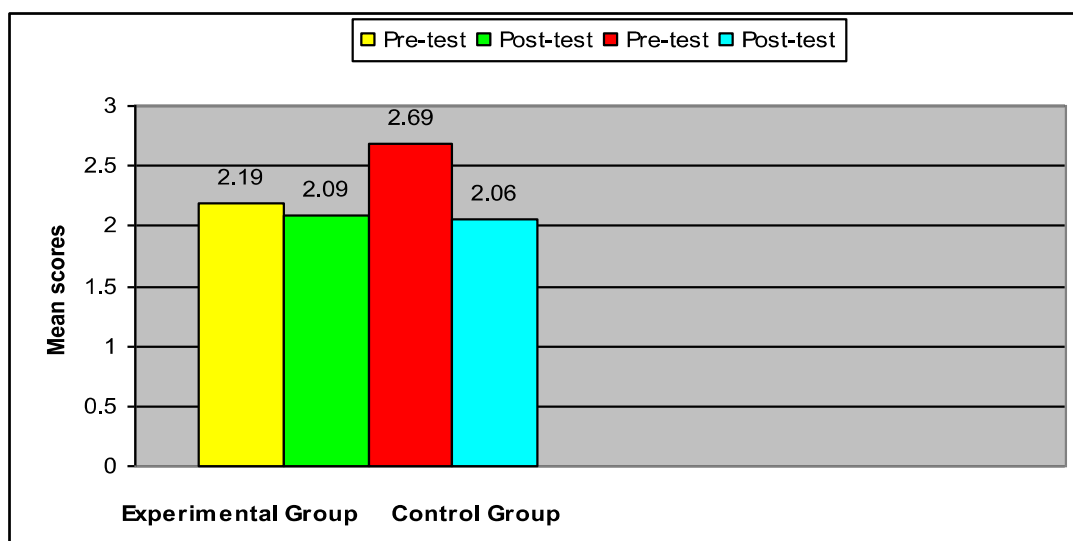


Figure-6: Mean Scores of 600 Yard Run on Pretest and Post-test of Experimental and Control Group of Male Cricket Players.

TABLE 2
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST
MEAN SCORES OF PULL-UPS OF EXPERIMENTAL AND CONTROL
GROUP OF MALE CRICKET PLAYERS

Test	Groups	Mean	M.D.	σ DM.	t-value
Pre-test	Experimental group	6.15	0.70	0.51	1.37
	Control Group	6.85			
Post-test	Experimental group	8.85	1.25	0.47	2.60*
	Control Group	7.60			

*Significant level at 0.05

$t_{0.05(38)} = 2.00$

It is evident from Table 2 that statistically significant difference was not found between the pre-test means of experimental group and control group in pull-ups of male cricket players, as the obtained t-value of 1.37 was less than the required value of $t_{0.05(38)} = 2.00$. This implies that both the groups are homogeneous with respect to muscular strength and endurance of arm and shoulder at pre-test point. But the significant difference was found between the post-test means of experimental group and control group in pull-ups of male cricket players, as the obtained t-value of 2.60 was higher than the required value to be significant. This suggests that there is a effect of treatment on the pull-ups test performance.

TABLE 3
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST
MEAN SCORES OF SIT-UPS OF EXPERIMENTAL AND CONTROL
GROUP OF MALE CRICKET PLAYERS

Test	Groups	Mean	M.D.	σ DM.	t-value
Pre-test	Experimental group	26.90	0.95	1.13	0.83
	Control Group	27.85			
Post-test	Experimental group	29.05	1.20	1.11	1.07
	Control Group	27.85			

Insignificant level at 0.05

$$t_{.05(38)} = 2.00$$

It is evident from Table 3 that statistically significant difference was not found between the pre-test and post-test means of experimental group and control group in sit-ups of male cricket players, as the obtained t-values of 0.83 and 1.07 were less than the required value of $t_{.05(38)}=2.00$. This implies that both the groups are homogeneous with respect to muscular strength and endurance of abdominal muscle at pre-test and post test point. This suggests that there is no effect of treatment on the sit-ups test performance.

TABLE 4
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST
MEAN SCORES OF SHUTTLE RUN OF EXPERIMENTAL AND
CONTROL GROUP OF MALE CRICKET PLAYERS

Test	Groups	Mean	M.D.	σ DM.	t-value
Pre-test	Experimental group	16.20	4.54	0.34	13.17*
	Control Group	11.65			
Post-test	Experimental group	11.62	0.03	0.13	0.28
	Control Group	11.65			

*Significant level at 0.05, $t_{.05(38)} = 2.00$

It is evident from Table 4 that statistically significant difference was found between the pre-test means of experimental group and control group in shuttle run performance of male cricket players, as the obtained t-value of 13.17 was higher than the required value of $t_{.05(38)}=2.00$. This implies that both the groups are heterogeneous with respect to agility at pre-test point. But the significant difference was not found between the post-test means of experimental group and control group in pull-ups of male cricket players, as the obtained t-value of 0.28 was much less than the required value to be significant. This suggests that there is no effect of treatment on the shuttle run test performance.

TABLE 5
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST
MEAN SCORES OF STANDING BROAD JUMP OF EXPERIMENTAL
AND CONTROL GROUP OF MALE CRICKET PLAYERS

Test	Groups	Mean	M.D.	σ DM.	t-value
Pre-test	Experimental group	194.70	18.55	4.28	4.33*
	Control Group	176.15			
Post-test	Experimental group	170.40	5.75	4.22	1.36
	Control Group	176.15			

*Significant level at 0.05

$t_{.05(38)} = 2.00$

It is evident from Table 5 that statistically significant difference was found between the pre-test means of experimental group and control group in standing broad jump performance of male cricket players, as the obtained t-value of 4.33 was higher than the required value of $t_{.05(38)}=2.00$. This implies that both the groups are heterogeneous with respect to explosive strength of legs at pre-test point. But the significant difference was not found between the post-test means of experimental group and control group in standing broad jump performance of male cricket players, as the obtained t-value of 1.36 was less than the required value to be significant. This suggests that there is no effect of treatment on the standing broad jump test performance.

TABLE 6
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST
MEAN SCORES OF 50 YARD DASH OF EXPERIMENTAL AND
CONTROL GROUP OF MALE CRICKET PLAYERS

Test	Groups	Mean	M.D.	σ DM.	t-value
Pre-test	Experimental group	8.99	0.21	0.23	0.90
	Control Group	9.21			
Post-test	Experimental group	10.27	1.06	0.26	4.06*
	Control Group	9.21			

*Significant level at 0.05

$t_{.05(38)} = 2.00$

It is evident from Table 6 that statistically significant difference was not found between the pre-test means of experimental group and control group in 50 yard dash of male cricket players, as the obtained t-value of 0.90 was less than the required value of $t_{.05(38)}=2.00$. This implies that both the groups are homogeneous with respect to speed and explosive strength performance at pre-test point. But the significant difference was found between the post-test means of experimental group and control group in 50 yard dash of

male cricket players, as the obtained t-value of 4.06 was higher than the required value to be significant. This suggests that there is a effect of treatment on the 50 yard dash test performance.

TABLE 7
SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST-TEST
MEAN SCORES OF 600 YARD RUN OF EXPERIMENTAL AND
CONTROL GROUP OF MALE CRICKET PLAYERS

Test	Groups	Mean	M.D.	σ DM.	t-value
Pre-test	Experimental group	2.18	0.22	0.09	2.44*
	Control Group	2.40			
Post-test	Experimental group	2.89	0.44	0.21	2.09*
	Control Group	2.45			

*Significant level at 0.05

t.05 (38) = 2.00

It is evident from Table 7 that statistically significant difference was found between the pre-test and post-test means of experimental group and control group in 600 yard run of male cricket players, as the obtained t-values of 2.44 and 2.09 were higher than the required value of t.05(38)=2.00. This suggests that there is a effect of treatment on the 600 yard test performance in both groups male cricket players.

DISCUSSION

The primary finding of this investigation was that regular participation in a cricket training program produced greater magnitudes of improvement in muscular strength and endurance of arms and shoulders, speed and explosive power of legs, and cardio-vascular endurance of experimental group than control group after short-term training. No injuries occurred as a result of training throughout the study period. The present observations suggest that incorporating training into the cricket coaching and training may be a safe and valid means to promote physical fitness in school level cricket players. These findings have important practical relevance for designing training program for school level cricket players since muscular fitness is an important health related fitness component that contributes to tasks of daily life, participation in sports activities, and reduction of disease (National Association for Sport and Physical Education, 2004).

The present study confirmed the positive effects on muscular strength and endurance of arms and shoulders, speed and explosive power of legs, and cardio-vascular endurance of school level male cricket players over six weeks. Male cricket players engaged in cricket training program of six weeks demonstrated the development in muscular strength and endurance of arms and shoulders, speed and explosive power of legs, and cardio-vascular endurance. The results of the present study was partially supported by Hopkin (1999) & Sharma (2011).

In the present study, students who participated in the cricket training program made significantly greater gains on the muscular strength and endurance of arms and shoulders, speed and explosive power of legs, and cardio-vascular endurance than changes

in the control group. These results show that school level cricket players respond to cricket training by increasing their ability to perform selected strength endurance and explosive power.

It was hypothesized that there may be significant difference in pre-test and post means of Experimental and Control Groups of male cricket players on six components of AAHPERD youth physical fitness tests i. e. Pull-Ups, Sit-ups, Shuttle Run, Standing Broad Jump, 50 yards Run and 600 meter Run is partially accepted, as the positive effects were found on muscular strength and endurance of arms and shoulders, speed and explosive power of legs, and cardio-vascular endurance parameters of physical fitness over six weeks school children engaged in cricket training program.

CONCLUSIONS

1. Male cricket Players of both the groups were homogeneous with respect to muscular strength and endurance of arm and shoulder at pre-test point. But there is an effect of treatment on the pull-ups post-test performance.
2. Similarity was found among male cricket players of both the groups in their muscular strength and endurance of abdominal muscle at pre-test and post test point. But there was no effect of treatment on the sit-ups test performance of male cricket players of school level belong to urban and rural area.
3. Significant effect was not observed on the shuttle run test and standing broad jump performance of Male Cricket players of school level belong to urban and rural area.
4. Significant effect exhibited by male cricket players of school level belong to urban and rural area on the 50 yard dash and 600 yard test performance.

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APPENDIX "A"

AAHPER YOUTH FITNESS TESTS

1.Pull-ups

Purpose: To measure the arm and shoulder strength.

Facilities and Equipment: A metal or wooden bar of 1.5 inch diameter.

Procedure: The bar should be high enough so that the pupils can hang with his arms and legs fully extended and his feet free of the floor. He should use the overhand grip. After assuming the hanging position, the pupils raises his body by his arms until his chin can be placed over the bar and then lower his body to a full hang as in the starting position. The exercise is repeated as many times as possible.

Scoring: Record the number of completed pull-ups to the nearest whole number.

2.Bent Knee Sit Ups

Purpose: To measure the abdominal strength and endurance.

Facilities and Equipment: Mats and stop watch.

Procedure: The subject laid down on his back with knee bent, held feet on the floor and heels not more than 12 inches from the buttocks. The subject then put her hands on the back of the neck with finger clasped and placed elbow square by on the mat. Feet were held by a partner to keep them in contact with the floor. The subject tightened her abdominal muscles and brought her head and elbows forward by curling up and finally touched the elbows to the knees. This exercise is repeated as many times as possible in the time requirement. After giving the above mentioned demonstration to the subject, a signal start is given to a specific subject. At the signal start the performer starts sit-ups and the timer starts the watch. The performer continues performing the sit-ups at her best possible speed till the timer gives a stop signal after 60 seconds.

Scoring: One point is scored for each correct sit-up. The score is the maximum number of sit-ups completed in 60 seconds

3. Shuttle Run

Purpose: To measure speed and agility

Facilities and Equipment: To lines parallel to each other and 30 feet apart (Boys) were marked on the field. Stop watch, wooden blocks and whistle were the equipments.

Procedure: The subject stood in front of one of the lines with two wooden blocks beyond the other line. On the signal start the subject run to the bocks, take one, and returns to the second block, which is carried across the starting line on the way back

Scoring: The score was the total time taken to complete the course recorded to 1/10th of a second.

4. Standing Broad Jump

Purpose: To measure strength & power of the legs muscles.

Facilities and Equipment: Measuring tape and space on the floor or an outdoor jumping pit.

Procedure: The subject stands behind a takeoff line with his feet several inches apart. Before,

jumping the student dips at the knees and swings the arms backward. She then jumps forward by simultaneously extending the knees and swinging the arms forward. Two trials are permitted. Measurement is from the closest heel mark to the takeoff line. Scoring: The score was the best of three distances recorded in centimeters and meters only the best trial was recorded.

5. 50 Yard dash

Purpose: To measure speed

Facilities and Equipment: Athletics track with starting line a 50 yard course and a finish line. Two Stop watches.

Procedure: After a short warm up period the subject takes a position behind the starting line. Best results are obtained one line is used as a starting line and the other as the finish line on the signal Ready ? Go! the subjects start running at their best to reach the finish line at their earliest.

Scoring: The score was the time taken to complete the course to the nearest 1 /10th of a second between the starting signal and the instant the subjects crossed the finishing line.

6. 600 yards run

Purpose: To measure the endurance

Facilities and Equipment: Stop watch, Athletics track, pen & paper

Procedure: The subjects are asked to take a standing start. At the signal ready? Go! The male subjects start run the 600 yard distance. Subjects may run in group of a dozen or more. When students run in groups, they should be paired into partners. While one subjects runs, the partner likens. For the timer to call out his partner's time when she crosses the finished line and ready this time to the score.

Scoring: The score was the time taken to complete the course in minutes and seconds.